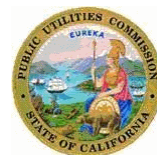


**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking Pursuant to Enhance
the Role of Demand Response in Meeting the
State's Resource Planning Needs and Operational
Requirements.

R.13-09-011
(Filed September 19, 2013)

**COMMENTS OF NEST LABS, INC. ON ADMINISTRATIVE LAW JUDGE'S RULING
REQUESTING RESPONSES TO ADDITIONAL QUESTIONS IN REGARD
TO 2018 AND BEYOND DEMAND RESPONSE PROGRAMS**

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In accordance with the directives provided in the May 20, 2016, *Administrative Law Judge's Ruling Requesting Responses to Additional Questions in Regard to 2018 and Beyond Demand Response Programs* ("Ruling"), Nest Labs, Inc. ("Nest") offers its comments in response to questions pertaining to the Interim Report on Phase I Results: 2015 California Demand Response Potential Study. As noted in the Ruling, comments were solicited from all parties in order to facilitate the further development of a record to support a decision providing the investor-owned utilities ("IOUs") guidance for developing applications for 2018 and beyond demand response activities and budgets.

The Ruling asks parties to respond to questions in the following five categories: 1) Demand Response Goal and Objectives; 2) Improving Demand Response Program Design; 3) Increasing Participation and Performance in Demand Response; 4) Increasing Third-Party Provider Participation into the California Independent System Operators (CAISO) market; and 5) Supporting the integration of supply resources into the CAISO market. Although Nest does not initially respond to all questions contained in the Ruling, it reserves the right to address other questions in the reply comments that are due July 11, 2016.

I. DESCRIPTION OF NEST LABS

Founded in 2010, Nest Labs is dedicated to reinventing home products like the thermostat and smoke alarm to provide customers with simple, beautiful and thoughtful hardware, software and services, thereby helping them reduce energy consumption and keep their families comfortable and safe. Nest manufactures the Nest Learning Thermostat, which is equipped with sensors, Wi-Fi capability, and smart-phone grade processing, to help customers consume less energy. It learns their preferences, turns the temperature down when the house is empty, automatically lowers AC runtime when humidity conditions permit, thereby helping people lower their energy use without sacrificing comfort. Nest also has service offerings for utilities to help address their load management needs. Today, Nest products are sold in the U.S., U.K., E.U. and Canada and are installed in more than 120 countries. Nest is an Alphabet Inc. company based in Palo Alto, California.

II. CATEGORY 1 QUESTIONS: DEMAND RESPONSE GOAL AND OBJECTIVES

In this category, parties to the proceeding are asked to respond to the following eight questions regarding the issues discussed in the Ruling:

1. In general, what should the Commission expect demand response to accomplish?

At the most basic level, demand response (“DR”) should provide meaningful, reliable load reductions through the cooling season that can be targeted to meet specific grid constraints when they occur. This high level goal should underscore that DR resource programs need to be sizable and not merely behavioral in nature. Further, DR programs should be flexible enough to provide California with the load shaping capabilities to handle significant levels of intermittent generation. Nest firmly believes that the Commission must leverage the connected home to support these objectives. By facilitating large, IOU-run programs that are designed and

delivered in a customer-centric way, the Commission will increase customer engagement with their energy use and thus facilitate successful implementation of California's broad portfolio of energy policies.

2. In general, what are your expectations of demand response in California?

See response to Question 1.

3. Should the Commission set a different goal for load modifying and supply demand response resources? If yes, respond to the first two questions separately for load modifying and supply demand response.

Nest opposes this type of differentiation as it usually results in the supply DR resources being favored at the expense of the load modifying share. If load modifying resources can deliver what is needed when it is needed (based on settlement procedures), then they should have the same access. Setting different goals is simply a route to further market complication that deters parties from bringing forth creative and potentially valuable solutions.

4. Should the Commission set a different goal for third-party supply resources (e.g., demand response auction mechanism) and utility supply resources (e.g., Southern California Edison's Capacity Bidding Program bid into the CAISO market? If yes, respond to the first two questions separately.

No. Setting up different goals for third party versus utility supply resources will inevitably lead to the prioritization of the resource accorded a higher goal. It is premature at this time to determine whether third party or utility supply programs should be favored over the other. Rather, there should be a full and free competition between the two categories so that, as more experience is gained, the Commission can determine if one resource should be favored.

We note with favor that the IOUs have moved to support the engagement of their customers in demand response, both directly and indirectly. Customers should have a range of choices available to them so that they can make decisions that best suit their own needs and desires. Nest does not see the need to reduce the role of the IOUs to facilitate the further growth of demand response.

Further, in establishing DR goals it is important to stress the virtue of simplicity, as it facilitates customer understanding and receptivity to offerings from the State and the IOUs. It needs to be easy for mass market customers to participate in DR in order to maximize the potential resources that can be tapped. Setting up differing goals for third party and IOU supply resources would not enhance simplicity for customers.

5. What metrics and targets (e.g. x number of customers per year per program or y percent of customers able to respond within z number of minutes) should the Commission use to measure the following aspects of demand response: Customer participation, engaging new customers, reliable customer response, deployment of automated technologies, market transformation; and integration with other distributed energy resources including energy efficiency and battery storage.

A short response would be: all of the above. The use of “X number of participants” is beneficial because DR is at its heart a customer engagement / benefits program and X is a significant means for measuring a specific program’s attractiveness. Conversely, the use of “Y percent of customers able to respond within Z minutes” is intrinsically valuable as DR is a resource. For that matter, another valuable criterion would be the “expected MW able to respond within Z minutes” to further emphasize the resource element.

Nest also would suggest another valuable metric would be the use of the Customer Satisfaction Score or CSAT. The CSAT measures a customer's satisfaction with the service received. In its simplest form, CSAT is expressed as a percentage between 0 and 100, with 100% representing complete customer satisfaction. A customer with a higher CSAT is more likely to participate robustly in DR programs, explore related opportunities to reduce its demand and “spread the good word” to friends and neighbors about the availability of DR programs and the related savings.

6. Are there additional demand response aspects for which the Commission should develop metrics and targets?

The ability of a program, product, or service to deliver energy efficiency (“EE”) and time of use (“TOU”) benefits in addition to DR should be a target for the Commission. It is highly important to recognize that some devices, like the Nest Learning Thermostat, deliver DR, EE, and now TOU benefits all via a single product. This sort of “all-in-one” approach can contribute significantly to the attainment of a multiplicity of interrelated goals in service of the State’s efforts to address climate change and reduce GHG emissions.

7. Explain and justify why and how the Commission should prioritize the demand response aspects provided in questions five and six above?

Essentially, DR is a customer engagement program that provides real benefits to customers meaning that both customer participation and CSAT metrics are of significant importance and should be emphasized. Priority should be accorded to DR resources that provide real benefits to the grid, meaning that resource magnitude and reliability metrics are of particular importance. Further, resources that provide EE benefits as well mean that EE metrics must also be considered.

8. Who should be responsible for meeting the goal and objectives of demand response?

Identifying a single entity to be accorded the responsibility “for meeting the goal and objectives of demand response” is not a practical or productive effort. It should go without saying that this is an area where there is shared responsibility among the Commission, the IOUs, the CAISO, third party DR and technology providers and, last but not least, customers themselves. The critical importance of DR to meeting the state’s goals cannot be over-emphasized. There needs to be a collective effort to attain these goals and thus there needs to be collective responsibility for meeting the State’s DR objectives.

Having said that, for the foreseeable future, Nest firmly believes that the utilities need to be the driver of demand response development in California, particularly at the residential level. There is a growing need for distribution-level demand response, which is harder for any party other than a utility to plan and account for. Furthermore, at the residential level, Nest has observed nationally that our customers will participate at a higher level in a program co-branded with a utility as opposed to an independent vendor program due to the facts that the sign-up process is often easier and because of customers' longstanding familiarity with their local utility. Since California does not allow customer choice at the residential level,¹ we do not have a large number of electric service providers who offer DR programs to residential customers as is the situation in other states that have not restricted customer choice for residential customers. This means that in California, residential customers are full requirements customers of the electric utilities who would be more difficult to capture if direct-to-market efforts are required. Therefore, for at least the residential level, utilities need to have primary responsibility for meeting the goals and objectives of demand response.

III. CATEGORY 2 QUESTIONS: IMPROVING DEMAND RESPONSE PROGRAM DESIGN

- 1. The Interim Report found that demand response resource potential and costs within an end-use category varies widely across customer sites depending upon cost of incentives, program administration, marketing and individual customer load shapes. The report recommends targeting customers within each sector who have eligible end-uses with strong coincidence between end-use load baselines and times of system need, large potential load reduction, and characteristics that indicate a propensity to participate. How should programs be designed to best make use of this information?**

¹ This is with the exception of a very small number of residential customers that were grandfathered in prior to the energy crisis-era suspension of direct access. Since the passage of Senate Bill 695, new residential customers are not permitted to sign up for direct access.

Nest agrees that this sort of customer targeting is highly advantageous. Summer air conditioning (“AC”) load is a primary driver during the summer months, when effective demand response is vital. Partnering with consumer product companies to target programs based on the capacity and value of a home’s AC load would address the root of the problem by leveraging the large amount of marketing data that consumer products companies like Nest have compiled to determine who is most likely to want to participate in a DR program.

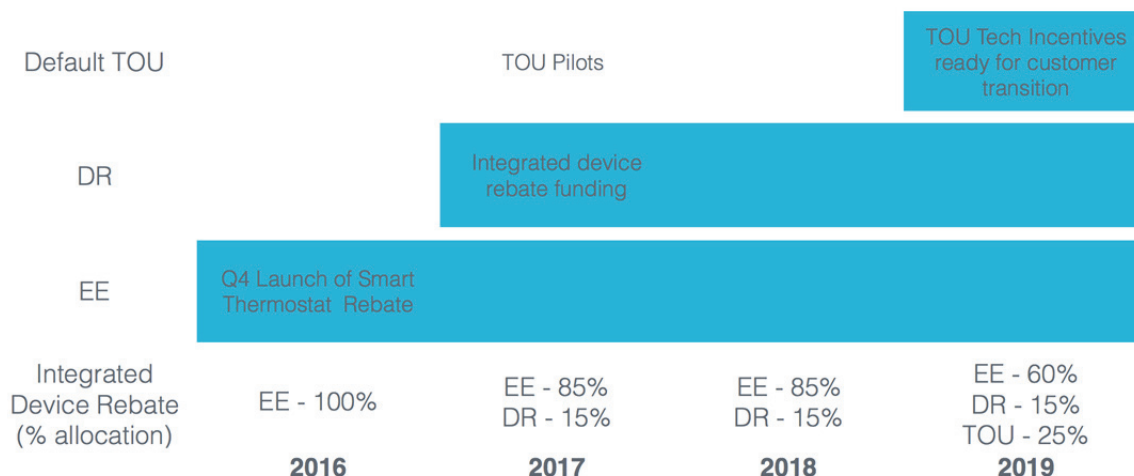
- 2. The Interim Report recommends integrating demand response with other clean energy services to reduce costs, increase potential and decrease customer confusion. The report points to a growing number of integrated measures that provide both energy efficiency and demand response capabilities. These integrated measures include programmable communicating thermostats and other technology, which provide energy management, convenience, and may reduce the cost of enabling demand response. What policies or benchmarks should the Commission adopt to support such integration? Explain and justify whether and how the Commission should ensure that new construction includes modern demand response enabling technologies?**

Nest agrees that the integration of DR with other services will bring multiple benefits and thus should be encouraged by the Commission. Smart communicating thermostats (“SCTs”) offer significant value in a number of different contexts. They can serve as an effective DR vehicle, offer meaningful EE savings and also can be very beneficial in the TOU area.² In order to more widely derive these benefits, the Commission should authorize an up-front incentive for customers to acquire SCTs in California. In other words, there should not be one incentive for EE, one for DR and yet another for TOU. That could be accomplished through simple back end order allocations that the IOU's could do, which would simplify the customer experience and messaging and could happen in phases (i.e. across regulatory proceedings that are not directly tied together). In addition, each of the programs (EE/DR/TOU) could separately fund programs

² Nest’s Time of Savings program can automatically reduce customers heating or cooling use when electricity costs are highest.

such as Seasonal Savings, Rush Hour Rewards, Time of Savings, etc., on top of those devices. Nest offers below a chart showing an integrated strategy for a phased roll out of such a program.

Integrated Strategy with a Phased Roll Out



The Commission also should take notice of the ambitious Smart Thermostat Initiative that was recently adopted by the Illinois Commerce Commission. As noted by the Environmental Law and Policy Center, “Residents across Northern Illinois are eligible for rebates on smart thermostats that can cut the cost of the devices in half, making the convenience and increased control of energy use more affordable. **As of June 1, 2016, *eight different smart thermostats are eligible for up to \$175 in rebates*** for customers with Wi-Fi, central air, and a furnace.”³ Self-installation rebates are \$100 from Commonwealth Edison and an additional \$50 from the customer’s gas utility for a total of \$150 in rebates. An additional \$25 is available from Commonwealth Edison if the customer hires a contractor to install the device. Customers can take advantage of utility rebates through self-installation in which the customer purchases,

³ See, <http://elpc.org/smartthermostatsinfo/> [emphasis in original].

installs and registers a qualifying smart thermostat or by hiring a professional contractor to install a qualifying SCT.

As noted in an Illinois Commerce Commission press release announcing the Smart Thermostat Initiative:

Illinois Commerce Commission Chairman Brien J. Sheahan applauded the public-private partnership that led to the groundbreaking initiative at a press conference Thursday where the program was announced.

“I am proud that a public-private partnership is embracing the opportunities that come with being technology enablers. Innovation in energy-efficient products creates enormous opportunities for cost-effective energy savings,” Sheahan said. “One of the Illinois Commerce Commission’s primary responsibilities is to determine the rates energy companies can set for consumers. We have strong standards requiring that ratepayer dollars only be used for energy efficiency programs if those programs deliver real savings to customers. The smart thermostat initiative meets the test because smart thermostats work. As smart thermostats increasingly come online through this initiative, it will not only help our state achieve its energy efficiency goals, but customers will save money and everyone will benefit.”⁴

Programs such as this absolutely comply with the Interim Report’s recommendation for “integrating demand response with other clean energy services to reduce costs, increase potential and decrease customer confusion.”⁵ The Commission should take steps to launch its own similarly ambitious program so as to take a meaningful step towards achieving these goals.

- 3. The Interim Report observes widespread confusion among building code officials and market actors regarding the intention of Title 24 requirements for automated technology. The Interim Report recommends that the Commission evaluate knowledge gaps and develop training sessions to address the gaps. Should the Commission evaluate knowledge gaps for Title 24 requirements? How should such an evaluation be performed? What policies should the Commission adopt to ensure that Title 24 can lower the cost of demand response automation?**

⁴ October 8, 2015, *Illinois Commerce Commission Supports New Smart Thermostat Initiative*, can be found at <https://www.icc.illinois.gov/press/>

⁵ Ruling, at p. 5.

With regard to this issue, Nest would only recommend that these longer-term efforts not distract from the ability to make a significant impact very quickly in the near-term.

4. The Interim Report concludes that providing feedback to customers immediately following a demand response event encourages customers to participate in demand response. How can the Commission design programs to cost-effectively provide feedback to customers?

Nest questions the accuracy of this assumption, at least for residential customers, as our experience is that customers do not have any particular interest in detailed reporting after an event. Rather, our experience has been that customers want to understand what will be happening before the event and how long the event will last. In our experience, it is important to balance the level of event communications so as to not burden or confuse customers.

5. The Interim Report advises that demand response potential could be greater and more cost-effective if market transformation policies and practices were adopted. What practices or policies should the Commission adopt to facilitate market transformation? How can the Commission encourage and support manufacturers producing end-uses applicable to demand response, e.g. appliances and building controls?

It is important to note that SCTs have come to be accepted and regarded as a valuable DR resource. The Commission needs to recognize and appreciate the benefits that SCTs provide from both an EE and customer satisfaction perspective, as well as the coincident peak load reduction and TOU attributes that are a further beneficial aspect of SCTs. In this regard, it would be helpful provide greater upfront discounts and incentives for customers to acquire and use SCTs.

6. Explain and justify the most important program design changes the Commission should require for the 2018 demand response portfolio. Include a detailed explanation and justification for how this change could be made.

Nest would reiterate in response to this question that the Commission should authorize and encourage both third party direct and IOU-sponsored DR programs. Such programs should leverage a “Bring Your Own” (“BYO”) model that could cost effectively leverage EE funds as

part of the up-front purchase incentive. The Commission should recognize that the EE, CSAT, and coincident peak load reduction (TOU) benefits from SCTs are of such significance as to justify the provision of greater upfront discounts followed by the use of DR values to pay customers for their ongoing participation over time.

- 7. Over the history of the demand response programs, the Commission has approved many pilots. Pilots allow the Commission to test a new concept or program design, or advance a new policy objective or operational requirement. What current demand response pilots should the Commission consider transitioning to a program? Are there pilots outside of the demand response portfolio that the Commission should consider integrating into the demand response portfolio, either for 2018 or in the future? In addition, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison are each directed to include, with their responses to the questions in this Ruling, a list of all demand response pilots approved since 2012. The list shall include the justification for undertaking the pilot, the customer segment the pilot targets, the results of the pilot, and whether the pilot should be transitioned to a full program.**

Once again, Nest would note the importance of the utility BYO model for mass market participation as the easiest path increase DR participation.

- 8. Through the 2013-2014 demand response program year, the Utilities completed process evaluations for demand response activities on an intermittent basis. Have the process evaluations been useful and/or effective for improving evaluated programs' design and operation? Is there a need to continue the process evaluations? How often? Should there be an agreed-upon criteria for the demand response activities that should be included for evaluation? Should the process evaluations be filed formally?**

Yes, Nest believes the IOU process evaluations have been helpful. In order to make the best use of this data, however, the reports should be filed formally in order to support the understanding of improvement areas.

IV. CATEGORY 3 QUESTIONS: INCREASING PARTICIPATION AND PERFORMANCE IN DEMAND RESPONSE

- 1. The Interim Report has suggested at least six strategies that could increase participation in demand response, including lowering the cost of demand response, target marketing, market transformation of technologies, and aligning profit mechanisms across end-users, aggregators and utilities. What**

policies should the Commission adopt to increase participation in demand response?

See responses to Category 2, questions 5 and 6.

2. What policies should the Commission adopt to influence behavior change in response to time-of-use pricing?

The Commission should allow for the inclusion of technology incentives or funds for TOU customer solutions, like Nest's Time of Savings⁶ offering through SCTs. In other words, it should focus on automating DR response as to help facilitate adoption with the mass market. There should be a clear recognition that SCTs offer an automated solution that can help customers reduce HVAC usage during peak periods in a manner that is more effective than merely relying on exhortations for behavior change.

3. What design changes could the Commission make to current demand response programs to specifically increase the number of customers participating in the programs?

In comments above, Nest noted the value of simplicity. There needs to be ease of participation in DR programs that do not entail a steep learning curve and makes it extremely easy for customers to join and participate. Anyone who has acquired a new car recently has experienced the daunting shock of opening the glove compartment to find a five-pound owner's manual with thirty pages allocated just for the index. Put simply, that's the last thing we need for DR programs.

For example, the Demand Response Auction Mechanism ("DRAM") has encountered problems with the customer information service request ("CISR") process. Nest has found that requiring customers to complete a full CISR form as part of enrollment in the DRAM program has led to a significant drop-off in program participation. More specifically, a large number of

⁶ See, Nest Introduces Time of Savings Through Energy Partners, at <https://nest.com/press/nest-introduces-time-of-savings-through-energy-partners/>

customers successfully completed Nest's standard demand response program enrollment process but were subsequently “lost” when they did not initiate, or could not complete, the full CISR, which is an overly onerous form for typical customers. These types of barriers artificially constrain the ability to bring important energy programs to the mass market. Simplicity and the “KISS Principle” need to be paramount.

Further, Nest also recommends that the Commission should alter current DR programs by paying more attention to the aggregate DR portfolio results from residential DR customers rather than having a focus on individual customer performance. A party such as Nest should be able to offer a program or programs that scale across a large number of customers throughout the state who affirmatively opt in and thus enable Nest to use our patented SCT technology to achieve meaningful DR and EE gains. Finally, we reiterate yet again that increasing upfront device incentives would provide more EE/CSAT/Coincident peak benefits.

Nest has no response at this time to Questions 4 and 5.

V. CATEGORY 4 QUESTIONS: INCREASING THIRD-PARTY PROVIDER PARTICIPATION

Nest has no response at this time to the three questions in this category.

VI. CATEGORY 5 QUESTIONS: CAISO MARKET INTEGRATION OF UTILITY PROGRAMS

- 1. Should the Commission require that all demand response resources have one trigger or should the Commission allow multiple triggers, as is the current policy?**

Multiple triggers are preferable and should be retained. Local distribution utility needs can exist at the same time as system needs. Hence there is a need for both program types, particularly as there is value from IOU programs that can utilize a large residential portfolio for both use cases. Also, the system is likely to need both quick response, short duration needs as well as the more standard multi-hour lead time, longer duration needs. Hence, using multiple

triggers facilitates meeting both needs. We also note that these local and quick response needs will likely become more prevalent and necessary in coming years.

Nest has no response at this time to Questions 2-9, 11 and 12.

10. Currently, capacity incentives are competitively established (via competitive bids) for third-party providers participating in the CAISO market, administratively established for utility programs, and competitively established (via requests for offers) for third-party contracts with the utilities. Explain and justify whether the Commission should align the capacity incentives for demand response resources provided by utility programs with those provided by third parties? What are the advantages and disadvantages of moving to a competitive framework for all capacity incentives?

As a fundamental premise, Nest believes that California's demand response structure should encourage creative and innovative programs and proposals from *all* market participants. Therefore, it is critical that the Commission not answer these questions in an "either/or" manner. By that, we mean that the Commission should neither favor or frustrate third party providers nor favor or frustrate utility-run programs. Providing either incentives or disincentives to one class of providers vis-à-vis another class or classes more often than not simply distorts the results that would otherwise obtain in a free and competitive market. Therefore, we believe that both competitive and administratively established incentives should be aligned so as to permit both to coexist.

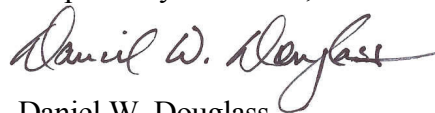
Nest believes it is important to remain in a situation where the IOUs can be the lead administrators and run their own demand response programs directly so long as in doing so they do not stymie or prevent the opportunity for third party providers to offer their own creative alternatives. By allowing the IOUs to run their programs and third party providers to run theirs, without roadblocks or favoritism to either, customers will inevitably send messages as to which programs are favored and which best meet their needs. This vital customer feedback will permit both the IOUs and third party providers to tweak, reshape or even abandon programs that do not

satisfactorily serve customer interests. Since Nest customers are uniquely well-positioned to participate in either utility-run or third party demand response programs, we wish to see them, and all other California ratepayers, given the widest possible options to contribute to the state's critical demand response goals.

VII. CONCLUSION

The evolution of demand response is a work in progress. Therefore, it is vitally important that the Commission not take steps that may inhibit the development of creative and innovative demand response offerings, whatever the source. Nest therefore supports the Commission moving in a direction that allows the utilities to remain in the lead role as administrators of their own programs while also encouraging third party providers to develop and offer creative programs without interference. Nest further strongly urges the Commission to consider development of a statewide SCT incentive program similar to that adopted by the Illinois Commerce Commission and described in the response to Category 2, Question 2 above that cuts across the DR/EE/TOU proceedings and offers meaningful opportunities for customers to acquire SCTs and participate actively in DR programs.

Respectfully submitted,



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